

PATENT APPLN. NO. 10/540,624
RESPONSE UNDER 37 C.F.R. §1.111

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IN THE DRAWINGS:

Please replace Figs. 8 and 15 with the attached replacement sheets of drawings.

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REMARKS

The Office has made several objections to the drawings.

The specification has been amended to avoid the objection relating to Figure 13 (paragraph 5 of the Action) by designating the second structural member (shown in Figure 13) as second structural member "B3". The specification has been amended to avoid the objection relating to Figure 12 (paragraph 7 of the Action) by adding a description of the steps represented by reference characters 70P-74P shown in Figure 12.

The drawings have been amended to avoid the objections relating to Figures 8 and 15. In replacement Fig. 8, "APL" has been changed to read --BPL--. In replacement Fig. 15, the partial figure indicated with "K" and the mark "K" together with the line between the partial figure and the mark "K" as well as the arrow drawn from the partial figure to the body figure have been deleted.

Removal of the objections to the drawings is believed to be in order and is respectfully requested.

Claim 5 has been amended to recite a dependency on claim 1 and to recite a range of maximum thickness (as defined in claim 1) in order to overcome the objection to the claim. Claims 9 and 17 have been amended to clarify the relationship between the thermosetting resin composition and the thermosetting matrix resin.

Removal of the objections to the claims is respectfully requested.

Claim 1 to 9, 11 to 13, 16, 17, 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, for being indefinite. The Office takes the position that the term "rugged" is a relative term.

Applicants respectfully disagree that the term "rugged" is used in the claims as a relative term or a term of degree. The term "rugged" is used in the claims to define a characteristic of the interface between the thermoplastic resin layer and the thermosetting layer, i.e., a surface that is rough and irregular (see, for example, The American Heritage Dictionary, Third Edition). Moreover, to the extent that the Office considers the term "rugged" to be a term of degree, the term is limited by the further limitations in claim 1 that a set of filaments among the groups of reinforcing fibers is impregnated with both of the resin of the thermosetting resin layer and the resin of the thermoplastic resin layer by passing through the interface; and that the maximum thickness of an area where said continuous filaments exist in said thermoplastic resin layer is 10 μm or more.

Claims 7, 8 and 9 have been amended to address the issues noted by the Office, i.e., the term "a layer" and the reference to the specification.

Removal of the 35 U.S.C. 112, second paragraph, rejection of the claims is believed to be in order and is respectfully requested.

Claims 1 to 3, 6, 8 and 11 to 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Obara (JP 07-047152).

Before discussing Obara (JP 07-047152 A), applicants note that original claim 1 has been amended to include the recitation "forming a two-layer structure", that is, in amended claim 1, the thermosetting resin layer and the thermoplastic resin layer are integrated at the interface between these layers to form and define a two-layer structure.

This amendment is supported, for example, in the description from page 72, line 23, to page 73, line 6 of the specification.

Claim 1 has also been amended to recite that a set of filaments among the groups of reinforcing fibers is impregnated with both of the resin of said thermosetting resin layer and the resin of the thermoplastic resin layer by passing through the interface. This limitation is supported in the specification by the description on page 20, lines 7-22.

Finally, claim 1 has been amended to include the limitation originally recited in claim 4 that the maximum thickness of an area

where said continuous filaments exist in said thermoplastic resin layer is 10 μm or more. Claim 4 has been canceled.

Regarding Obara, an area 10 in Obara is provided between the fiber-reinforced thermosetting resin layer 4 and the fiber-reinforced thermoplastic resin layer 5.

The area 10 is formed with an intermixture of the thermosetting resin 6 and the thermoplastic resin 7. The intermixture is formed by three-dimensionally intermingling, i.e., blending the thermosetting resin 6 and the thermoplastic resin 7, as explained in Claim 1, Example 4, or Fig. 3 of Obara. Consequently, the thermosetting resin 6 and the thermoplastic resin 7 in Obara are not arranged in and do not form a two-layer structure such that the thermosetting resin layer and the thermoplastic resin layer define a rugged interface.

The area 10 may also be formed with an intermixture of the thermosetting resin 6, the thermoplastic resin 7 and carbon fibers 8. The intermixture may also be formed by three-dimensionally intermingling, i.e., blending of the thermosetting resin 6 and the thermoplastic resin 7 in coexistence of the carbon fibers 8, as explained in Claim 2, Example 5, or Fig. 4 of Obara. Consequently, the thermosetting resin 6 and the thermoplastic resin 7 in Obara are not arranged at an interface forming a two-layer structure.

The state of arrangement of both of the thermosetting resin and the thermoplastic resin in Obara is, therefore, materially different from the state of arrangement of the thermosetting resin and the thermoplastic resin in the present invention as defined in claim 1 of the present application as amended. I.e., in Obara, both resins exist in a state of being intermingled with each other. In contrast, in the present invention, both resins exist in a state integrated with each other in a two-layer structure, without being in a state of an intermixture.

For this reason, Obara does not support a case of anticipation under 35 U.S.C. § 102 of claim 1.

Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being obvious over Obara.

The layered product recited in Claim 7 comprises two layered products each of which is defined in Claim 1. Therefore, the subject matter of Claim 7 is also not disclosed in Obara. A state of intermingling of a thermosetting resin and a thermoplastic resin (as in Obara) and a state of an arrangement of a thermosetting resin and a thermoplastic resin in a two-layer structure (as in the present invention) are quite different from each other. Therefore, Obara does not disclose or suggest the subject matter of Claim 7.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obara in view of Nishimura et al., JP 07-112039 ("Nishimura").

Nishimura (JP 07-112039 A) discloses a layered product comprising a fiber reinforced thermosetting resin layer and a fiber reinforced thermoplastic resin layer. However, in the layered product, there is no reinforcing fiber passing through both of the thermosetting resin layer and the thermoplastic resin layer. Therefore, the subject matter of claims 4 and 5 is not obvious under 35 U.S.C. § 103(a) over Obara in view of Nishimura.

Claims 9 to 13, 16, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inogakura et al., JP 09-277420 ("Inogakura") in view of Yoshihara et al., EP 1191079 ("Yoshihara"). Claims 16, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inogakura in view of Obara.

The propriety of these rejections depends on the rejection of claim 1. Since the rejection of claim 1 has been overcome, claims 9 to 13, 16, 17, 19 and 20 are prima facie patentable.

Removal of the 35 U.S.C. 102(b) and 35 U.S.C. 103(a) rejections of the claims is believed to be in order and is respectfully requested.

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The foregoing is believed to be a complete and proper response to the Office Action dated April 3, 2008, and is believed to place this application in condition for allowance. If, however, minor issues remain that can be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number indicated below.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,
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